



## Keeping Hawaii Clean

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JUST 4 KIDS!



### Environmental Protection and Operational Improvements

#### Scale Repair and Replacement

In June 2007, the scale at Waimanalo Gulch Landfill exhibited anomalies in its operation. Waste Management of Hawaii was quick to bring in experts to repair the existing scale and have it repaired and recertified. A new scale was installed in September 2007.



#### Pilot Metal Recovery Project

A pilot project to recover metal from the landfill began in April 2007 and continued for 60 days in partnership with Schnitzer Steel. During this 60-day pilot, 139.5 tons of ferrous metal were removed from the landfill. The results of the project are currently being evaluated for possible next steps.



#### Odor Control

Waste Management operates odor misters that effectively neutralize odors from the truck scale area. Waste Management works closely with the city and their contracted waste hauler to have odorous loads from a Honolulu wastewater treatment plant pre-treated to reduce odors. We also expedite odorous loads when they reach the landfill entrance to ensure that the trucks carrying the loads are allowed to proceed to the landfill as quickly as possible. The loads are then immediately covered with waste.

#### Landfill Gas System

In August 2005, Waste Management of Hawaii began full time operation of a landfill gas collection and control system. This gas management system allows for the combustion of landfill gas in a controlled environment, eliminating odors and destroying a potent greenhouse gas. Today, there are 24 gas extraction wells throughout the site, with plans to install an additional 12 wells in 2007. A landfill gas-to-energy project will be implemented sometime in the near future to convert landfill gas to electricity.

Currently, Waste Management utilizes an enclosed flare to burn off more than 400 cubic feet per minute of methane gas from the landfill at approximately 1,800 degrees.

#### Automated Leachate Collection System

Leachate is the liquid produced as water percolates through landfill waste. In August 2005, permanent automated pumping systems were installed in the leachate removal sumps at the facility. In July 2007, Waste Management also installed additional sumps. These automated systems ensure that the leachate levels are maintained in compliance with the

site permits and is continuously removed from the landfill.

### **Guardrails Installed Along Roadway**

During the last quarter of 2006, new guardrails were installed along the haul road at Waimanalo Gulch Landfill. Guardrails were installed for the safety of drivers and employees at the site.

### **Stormwater Collection and Drainage Control System**

Waste Management improved the stormwater collection and drainage control system by re-fitting the sedimentation basin to include a two-stage filter for inflowing stormwater. The new basin uses rip-rap (rocks that are strategically placed) to slow the flow of water and filter sediment as it enters the basin. At the lower end of the sedimentation basin, layers of sand and gravel are used to further minimize runoff into the ocean.

Waste Management also constructed more than 5,400 feet of rip-rap drainage swails at the facility to reduce erosion and move stormwater to the sedimentation basin on site. Approximately nine acres of soil cover have been hydro-seeded. Irrigation systems have also been installed to promote plant growth.

### **Groundwater Monitoring System**

Waste Management of Hawaii installed three additional groundwater monitoring wells during 2006 and 2007. These wells supplement the three existing wells used to monitor groundwater quality at the facility. Groundwater is sampled quarterly by independent consultants and sent to a third party laboratory with results submitted to the City and County of Honolulu and the State Department of Health.

### **CYCLE Compliance System**

Waste Management has fully implemented a computer-based compliance program that is utilized by all site management to ensure full compliance with state and federal permits and requirements. The system provides advance notice of upcoming compliance deadlines and also provides a mechanism to document completion of required activities.

### **Litter Prevention**

Operational techniques have been incorporated in the daily landfill activities to minimize litter including use of a small working face, pointing trucks into the wind while dumping and covering waste throughout the day. Redundant lines of litter control fencing are also installed adjacent to the working face to capture any litter. In addition, dedicated litter crews regularly patrol the landfill, the perimeter of the facility and nearby areas to collect any litter, including litter from outside sources.

### **Landfill Development**

In anticipation of future trash deliveries, Waste Management constructs cells on site as they are needed to properly and safely dispose of the island's waste. The cells are built in advance to ensure capacity is maintained on an ongoing basis. Currently, Waste Management is utilizing 101 acres of the 200-acre property and only engages the remaining usable acreage as needed.